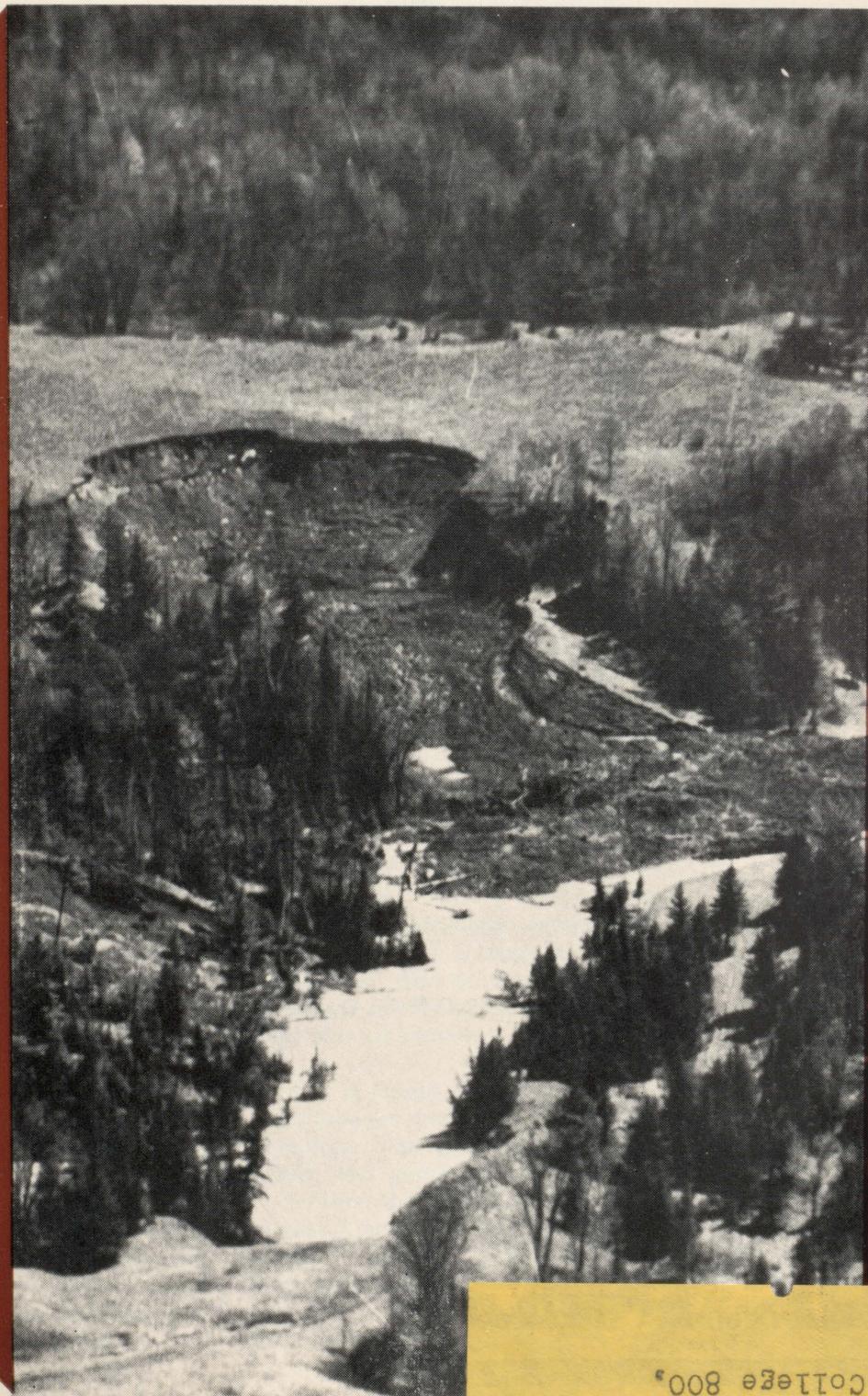


The macdonald JOURNAL

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Journal Jottings

Two entirely different events
occurred in Quebec last year —
one is peculiar to Quebec; the
other was the result of an un-
welcome visitor. Both left us with
unanswered questions. Why did
it happen, what precautions can
be taken and will it happen again?

In May 4, 1971 disaster struck
the quiet Saguenay Valley town
of St. Jean Vianney. Thirty-one
people were killed and 40 homes
swallowed up in a massive land-
slide of 15 million tons of "shift-
ing" earth. Why, we asked Prof.
Varkentin of the Soil Science
Department, did this tragedy
occur? His extremely readable
article on landslides in the clay
bills along Quebec's rivers gives
us that answer. Knowing that the
problem exists, it is to be hoped
that in the future we will always
be at least one step ahead of
possible disaster — one firm
step!

* The unwelcome visitor — southern
leaf blight of corn — is a disease
that has brought severe financial
losses to farmers south of the
border. When we learned that the
blight had spread to corn fields
in Ontario and Quebec, we decided
it was time to seek out the experts
and get their opinions on the
subject. Fortunately, Prof. W.
Sackston and Mr. J. Sheppard
in the Plant Pathology Department
were conducting a study of the
problem in Quebec and were
delighted to share their findings
with Journal readers.

In this business of journalism
there always seems to be more
questions than there are answers.
Thank you, gentlemen, for helping
to balance the scales. As a matter
of fact, I have also been wondering
about... but that will have to
wait until next month.

Hazel M. Clarke.

Guest Editorial

The Science Council and Agricultural Research

Much has been written during recent months on the current situation regarding the organization and funding of agricultural research in Canada. Much more will be written and said during the months to come. The facts revealed by the report of the Science Council of Canada (March 1971, Report No. 12) present a disturbing picture of the current situation and point to **urgent** and drastic changes in the organization and allocation of funds in support of agricultural research.

Agricultural research in Canada is conducted by the Canada Department of Agriculture (CDA) in its various (some 60 units) research institutes, experimental research stations, experimental farms, etc., spread across Canada; by the seven faculties of agriculture and three veterinary colleges in the universities; by provincial government agencies, the largest being in Ontario and Quebec and by a small and relatively insignificant number of industrial organizations (principally, the meat packing industry).

The Science Council Report has made the obvious point that the university has the sole responsibility for education at both under-graduate and post-graduate levels and for the kinds of research that must be associated with educational programs. Furthermore, the Report emphasizes that the agricultural industry, which includes increasing numbers of large commercial farms, will steadily increase the demand for university-trained personnel. The Report continues:

"It is to be hoped that agricultural graduates, including those with advanced degrees, will eventually permeate throughout the agricultural

industry. Because of the increasing complexity of modern agriculture, it should be an object of policy that a growing percentage of new farm owners be university trained — a sustained demand for university graduates to man this component of the agricultural industry could be expected for several decades. The world-wide technological revolution in agriculture is likely to continue and Canada can maintain its competitive position only if those who man the industry are in the forefront of this development. — Sustained but controlled growth in the existing seven Faculties of Agriculture and three Veterinary Colleges in Canada should be encouraged to provide the required qualified manpower." Other reports (Smallman and the Federal Task Force on Agriculture) have stressed the necessity of increasing the level of agricultural research at the Universities.

A summary of the financial facts reveal the magnitude of the current problems and the necessity for urgent changes. The facts speak for themselves:

The National Research Council (NRC) provides about twice as much direct support of university agricultural research as does the CDA. In recent years, CDA has provided between \$600,000 and \$800,000 per year to university research in agriculture, while NRC has provided about \$1.5 million per year. The level of CDA's support of university research has been insignificant — in the words of the Science Council Report "—the pitifully small size of these grants—". CDA allocates in the vicinity of 1% (\$600,000 — \$800,000 out of a total budget of app. \$60 million) of its total research funds extramurally as compared with the NRC which allocates well over 50% of its total funds to extramural research

projects in the universities and industry. In the opinion of the Science Council, a fundamental commitment must be made to ensure the health and vitality of the research programs in the faculties of agriculture and veterinary science — "a role for which the CDA has assumed little responsibility."

The Science Council proposes, among other major suggestions, that a series of central research centres should be placed strategically across the country and associated with the universities and that they would include in their programs everything from research in depth to extension and would utilize all disciplines required "from atmospheric physics to zoology."

It is argued that competitive access to the export markets of the world will be determined to a large extent by the progress made in agricultural research and development in Canada. "If the production efforts of Canadian farmers are not backed up by an aggressive and highly imaginative program of research in the physical and biological sciences, it is certain that our farmers will find it increasingly difficult to compete in international markets."

It is no longer necessary to argue the causes of the present inadequacies in the organization, development and funding of agriculture research and education in Canada. The facts are known. It is not too late to rectify these inadequacies if those who are responsible for setting policy are prepared to move with haste to provide the necessary inputs for agricultural research and education where it will count in the future.

Dr. H. F. MacRae, Chairman, Animal Science Department.

One of the most frightening experiences for man is when the ground beneath his feet begins to move. This is why earthquakes and landslides are unique natural disasters. While we do live in Québec in a weak earthquake zone, we rarely worry about earthquakes. But we are very familiar with landslides. Every spring there are landslides in the clay banks along the St. Lawrence River and the Ottawa River, or along one of the rivers flowing into them. Usually these are small slides which involve a few hundred square feet of pasture or unused land. But occasionally the slide is much larger and takes houses and people. The most recent such slide was at St. Jean Vianney last spring.

In this article, I want to describe how such slides occur, why they occur only in certain areas, and what protection we have against them.

The slide at St. Jean Vianney in May 1971 was not unique; it was only the most recent major slide. Large slides have occurred at Nicolet and at Portneuf in recent years. Many small slides occur every spring and have been occurring for hundreds of years. If you examine the land along any of these rivers you can find many old slides. They can be seen along the road to Ottawa where large chunks of earth form very rough fields in the slide areas. The old slides also show strikingly on aerial photographs. Where they occur along rivers flowing into the St. Lawrence, such as the Saguenay, they are restricted to the lower end of those rivers.

Similar slides occur in Sweden and Norway, where they have been extensively studied. In Canada, the Division of Building Research of the National Research Council, and a group at Université Laval have

L A N D S L I D E S

studied these slides and contributed to our knowledge of how and why they occur. We now have a fairly good understanding of the slides; what we need next are studies of the ground conditions in different areas to be able to predict the slide hazard.

To explain why the slides occur only in a certain area, and why they are so common, we have to go back into the recent geological history of this area. At the end of the last ice age when the glaciers which had covered Québec were melting, drainage of the melt water

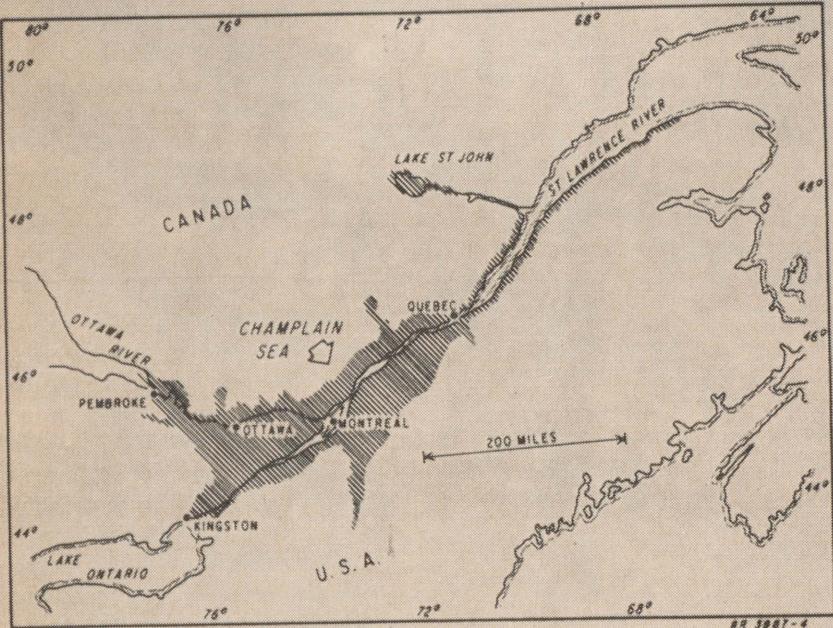
to the sea was restricted. The weight of the ice had depressed the land, and a large body of salt water known as the Champlain Sea was present. This water covered the land to about the present 600 foot contour level. It included the areas now along the St. Lawrence and Ottawa Rivers, and part way up the tributary rivers. This is roughly the area known as the St. Lawrence Lowlands.

As the ice melted, about 10,000 years ago, the water washed clay, silt and sand grains into this water. When clay particles fall into salt water they coagulate or clump together into loose units much as milk coagulates when poured into lemon juice. Clay particles are plate-shaped, and the arrangement within the coagulated units has been likened to a "card house" — flat clay particles at right angles to each other with a lot of water held in between. These units settled out in the bottom of the old Champlain Sea, in some places to a depth of 100 feet. After the ice melted, normal drainage down the St. Lawrence was established, and the landscape as we see it today was formed. The landslides occur in these beds of clay deposited in salt water.

The card house arrangement of clay particles is unstable. When something happens to stress the arrangement, it can collapse much as a card house collapses. This releases the large amounts of water trapped between the clay particles, and the whole mass becomes fluid and slides down toward the river. This is how the landslides occur. The collapse of the structure occurs at depths below 20 feet, and chunks of soil from the land surface flow out in the liquefied clay.

The stress on the arrangement which causes collapse usually

Left: The extent of the old Champlain Sea. This area has the clay deposits described in the article. Right: Air photo showing old landslide near Ottawa.



results from a high water table. This is why slides usually occur in the spring when the soil is wettest. The buoyant force of water releases the weight of soil which usually keeps the card house together. Earth tremors could also start collapse, and vibrations from large construction projects have been blamed for some of the slides.

The slides occur at some depth below the soil surface, because the surface 10 feet or so have been stabilized by drying. Drying brings the clay particles closer together into a stable arrangement. For example, the clay at depth

typically has a water content of about 70 percent. When the clay is dried and then rewetted it has a water content of only 35 percent in its new stable structure. If the clay is mixed with water, it flows at water contents above 60 percent. Therefore the natural water content of 70 percent is sufficient for flow once the card house structure is broken.

How are these clays different from other clay deposits which are not subject to such landslides? When clays settle in fresh water, they settle as individual particles and do not coagulate. The particles fall

flat, one on the other, to form a dense and stable structure. The same dense structure can be achieved by pressure, for example the weight of soil or ice on top of a clay deposit. Drying a clay, as mentioned above, will also achieve a stable structure. In order to have the unstable clays which we have been discussing, the three conditions of deposition in salt water, no drying, and no pressure had to be fulfilled.

All the clays deposited in the old Champlain Sea are potentially subject to sliding, and will slide when something happens to collapse the structure. If the clay occurs on a bank or a steep slope, it could slide — either next year or in 50 years.

Water control is the only measure which we can apply to decrease the probability of a landslide occurring. Adequate drainage to lower the water table, and prevent accumulation of excess water helps to keep the clay in a stable condition. Buildings and roads should not be constructed on areas along the river banks. Such areas should be left in pasture. This is our only protection on these clay banks, because slides can occur any time and we do not yet have the detailed information to allow us to predict when a slide will occur.

Prof. B. P. Warkentin,
Dept. of Soil Science.

Photographs of the landslide on the cover and opposite from Crawford, C. B. and Eden, W. J., 1967. J. Soil Mech. Found. Div., Proc. Amer. Soc. Civil Eng. 93:419-436. Map from Crawford, C. B. 1968. Eng. Geol. 2:239-265. Acknowledgement is given to the Division of Building Research of the National Research Council; The American Society of Civil Engineers, and Elsevier Publishing Co.



Southern Leaf Blight of Corn

Southern leaf blight of corn (SLBC) exploded across the corn fields of the United States in 1970. It also exploded across the front pages of newspapers in the corn belt, of financial pages in newspapers elsewhere, and resulted in a rash of articles ranging from the popular to highly specialized scientific papers in the scientific journals.

What was all the fuss about?

Southern leaf blight is just one of a number of diseases which attack corn leaves. It has been known for a long time, in many of the warmer parts of the world where corn is grown, and in North America — particularly in the southern states below the true corn belt. It obviously did some damage to the corn leaves, but until recently, not enough to affect yields appreciably.

About 1960 some investigators in the Philippines reported that southern leaf blight was widespread and causing severe damage there on hybrid corn varieties with Texas male sterile (Tms) cytoplasm. Their work was noticed but was not accorded much attention in North America. In 1969 considerable damage was caused by the disease in the main corn growing states. Plant pathologists proved that a new strain of the fungus **Helminthosporium maydis**, which causes the disease, had appeared and that this new strain was particularly virulent on corn hybrids with Texas male sterile cytoplasm.

In February 1970 southern leaf blight appeared in very severe form

on corn in Florida. It spread from there to corn in the other southeastern states, and gradually extended into the midwest and the main corn belt.

Individual farmers saw their crops ruined. Yield estimates for the whole United States kept being revised downward. By harvest time, it was obvious that yields had been reduced over 12 percent for the entire country. This meant a loss of over one billion dollars in return to the farmers, in spite of significant increases in the price of corn because of the shortage which developed.

The disease continued to spread northward. It reached southern Ontario by mid August, and by late September was identified as far east as Ottawa. Losses in Ontario were negligible. A one-day survey in plots and fields in Quebec in September did not turn up the disease.

What is the significance of all this to agriculture in Quebec? Farmers in this province desperately need to diversify their crops and sources of income. Grain corn has been a welcome new cash crop. Its value has been placed at about eight million dollars a year. Anything that threatens this new and increasing source of revenue poses a very real threat indeed to Quebec farmers.

To determine just how real this threat was, we undertook in the summer of 1971 to make a systematic survey of the main corn area of the province, with the financial support of the Quebec Department of Agriculture and Colonization.

What were we actually looking for? All sorts of spots develop on corn leaves, particularly late in the season. Descriptions of southern corn leaf blight in the scientific literature make it sound relatively easy to identify. Sad experience with this and other leaf spots, however, had shown that it is much too easy to confuse diseases. To avoid this trap, we travelled to southern Pennsylvania in July to see the outbreak of SLBC developing there, and then to southern Ontario to see what it looked like under Canadian conditions.

Before the new race appeared, spots of SLBC were always described as being small, less than $\frac{1}{4}$ inch long, narrow, pale brown in colour, affecting the leaves but very rarely the stalks or the cobs. The "new improved form" causes spots which may be 1 to $1\frac{1}{2}$ inches long and up to $\frac{1}{2}$ inch wide. It affects not only the leaves, but the leaf sheath, the stalks, the husks around the cobs, and can penetrate to the ear and affect the kernels. The fungus produces a toxin in the leaves which causes the death or "blighting" of an extensive area around the individual infection. When spots are numerous, this may result in the death of entire leaves and even of the whole plant.

The size, shape, and colour of the spots help to distinguish them from the northern leaf blight, which is less important although it causes larger individual lesions on the leaves (Fig. 1).

Corn leaf at top shows evidence of northern leaf blight; bottom leaf has southern leaf blight of corn.

After much thought, we decided to visit a number of points where we knew for sure that farmers were growing Tms hybrid corn, at representative locations throughout the corn area of Quebec. Dr. R. I. Brawn of the Agronomy Department provided excellent advice and very helpful contacts with seed growers; seed merchants, Agronomes of the Quebec Department of Agriculture and Colonization, and staff of the Canada Department of Agriculture Research Station at St. Jean were helpful in locating the fields. All the growers approached were extremely cooperative and interested in what we were doing.

We selected 24 "stations" which we tried to visit every two weeks from the beginning of the survey

in early August until the middle of October, covering various parts of the area in a series of one-day trips. In addition, we visited between 30 and 40 other farms and fields more or less at random, to try to determine the limits of spread of the disease.

At every station we visited, we collected samples whenever we found spots on the leaves. These samples were brought back to the laboratory, incubated in moist chambers, and examined carefully under the microscope. Every positive report of SLBC was based on identification of the pathogen in the laboratory.

The first positive identification was made on a single spot found on one leaf on August 5 in Iberville

County. A few days later we found it again in Deux Montagnes County (on a variety purchased at a premium price as Normal [N] cytoplasm seed!).

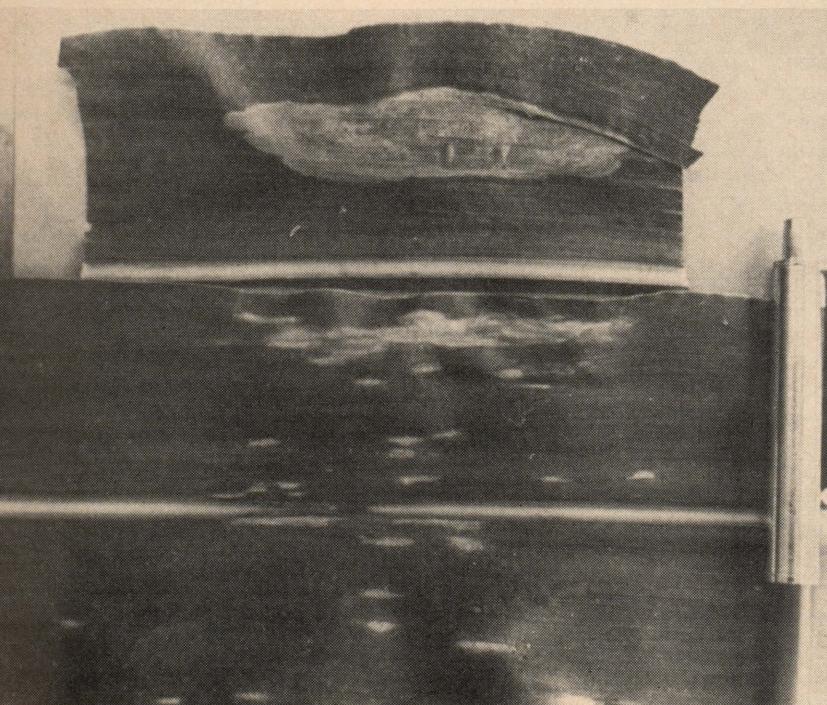
Two weeks later, spots were easy to find on one to five percent of the plants at stations in Iberville, Napierville, and Chateauguay Counties. By the end of August, spots were present on leaves above the cob on many of the plants at stations in Deux Montagnes.

By harvest time, the disease was widespread in the entire corn area, extending to Berthier, Joliette, Nicolet, and Drummond Counties. The distribution pattern of the disease was erratic. Some fields of susceptible corn remained entirely free or relatively free of SLBC throughout the season, although infection appeared early and developed rapidly in other fields in the same area.

Because the disease developed late, we do not believe that it caused any significant yield losses in any of the fields we visited.

What is the significance of all this for Quebec farmers?

Hybrid corn was responsible for part of the "green revolution" which has been carried on with the new dwarf wheat varieties and the new kinds of rice produced by intensive research in the last 20 years. It is a time-consuming process to detassel all the plants of the female parent line used in producing hybrid seed. When geneticists discovered male sterile cytoplasm which prevented pollen formation, and "restorer" genes which made it possible to produce



100 percent hybrid seed without detasseling, they made it easier and cheaper to produce such seed.

Within a very few years a large proportion of hybrid seed was produced by the use of male sterile corn inbreds. It was not long before drawbacks to the technique began to appear. First one disease, and then another, was found to attack lines with male sterile cytoplasm much more severely than hybrids with normal cytoplasm. This was overcome to a certain extent by introducing resistance to these diseases from new parent lines.

The appearance of a new race of *Helminthosporium maydis* which attacked specifically the lines with Tms cytoplasm, the form most widely used, proved to be a disaster. It may be possible to introduce resistance to the new form into the Tms lines, but it will be difficult, risky, and will take time.

A much simpler solution is to go back to producing hybrids with normal cytoplasm by the detasseling method. This is being done on a large scale, and the more expensive but safer seed should be available to most growers who want it by 1973, even if some will have to accept Tms seed or mixtures of Tms and normal in 1972.

If SLBC did not cause any appreciable damage in Quebec in 1971, what is it likely to do in 1972? It is impossible to answer that question, but it is possible to list some of the factors which will provide the answer.

First, we know that the fungus reached Quebec corn fields. We do not know whether it will survive the winter here. It has been shown that it can survive the winter in the mid-western U.S. on the debris from infected corn plants. It seems to live over better on stalks and leaves above the ground than it does on the soil surface. It apparently does not survive very long in the soil. The repeated thawing, rains, and freezing experienced in southern Quebec in January may possibly reduce the

chances of survival of the fungus. We left infected plants in our plots at Macdonald College, but we will not have answers on survival until April or May.

Even if the fungus does overwinter here, that alone will not produce an outbreak of SLBC in Quebec in 1972. It must have a susceptible host. If there is a great deal of Tms hybrid corn grown, it will have such a host. If most of the corn seeded is of normal cytoplasm hybrids, then the fungus will have very little on which to develop.

Overwintering of the fungus and the presence of Tms cytoplasm hybrids will not necessarily result in an outbreak of the disease. Weather conditions are extremely important in the development of this disease, possibly even more so than for other plant diseases. It develops best in relatively warm, moist weather. If we have a cool summer or a dry summer, chances of an outbreak from locally overwintered fungus will be very much reduced.

The fungus can also be introduced with the seed. Infection that develops too late in the season to hurt the yield may get into the cobs and seeds, affect the percentage germination, and may introduce the pathogen into new areas. Possibly more important is the spread by wind of spores from areas where the disease develops early. That is how the disease spread from south to north throughout the United States and into Canada in 1970. Weather conditions were not as favourable for an outbreak in 1971 in most of the corn areas, so much less infection developed. There will still be significant areas of Tms corn hybrids grown south of us in 1972. If the disease develops severely on them, significant quantities of inoculum may blow north and affect the crop in Canada.

Chemical control of SLBC is possible. It is not usually economic. Scientists, extension personnel, and corn growers did a lot of

experimenting with fungicidal sprays in corn fields in 1970. They showed that corn plants can be protected against infection by spraying with several different chemicals, but the costs were high. Also, it is very difficult to apply spray uniformly to the upper leaves of corn plants five to seven feet tall without doing a lot of damage.

The mechanical difficulties can be overcome by aerial application, either by fixed-wing aircraft or helicopters. Another approach is to use special air-blast sprayers, destroying a certain number of rows of corn in each "pass" through the field.

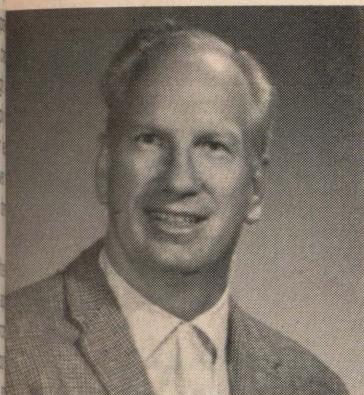
The economics of chemical control involves a calculated gamble. Researchers showed that if there were as many as 10 SLBC spots per leaf above the cob at the early silk stage, losses would be high and it **might** pay to try chemical control. No infections that severe occurred at that early a stage even in southern Ontario in 1970. Canadian growers are not likely to find spraying a worth while method of control.

Seed borne inoculum will be controlled reasonably well by chemical treatment of the seed by the hybrid seed companies. Infected corn stalks should have been worked into the soil by ploughing or cultivating in the autumn, to speed up the death of the fungus. Any corn stubble left over in the spring should certainly be worked into the soil as soon as possible to minimize spread of the fungus to nearby fields.

Most important, all those growers who can buy N cytoplasm seed without having to pay exorbitant prices for it, might be well advised to do so. Where N seed is not available, it would be preferable to use mixtures of N and Tms rather than T cytoplasm corn. If nothing is available except T cytoplasm hybrids, or if the others are too expensive, growers may very well take a calculated risk and sow the susceptible hybrids. The decision has to be their own.

W. E. Sackston and J. W. Sheppard
Department of Plant Pathology.

Macdonald Reports



Dr. A. C. Blackwood

New Dean Appointed

Dr. A. Clark Blackwood, Professor of Microbiology in the Faculty of Agriculture at Macdonald College, has been appointed Dean of the faculty of Agriculture and Vice-Principal, Macdonald College, for a period of five years effective April, 1972.

Dr. Blackwood looks forward to directing a definite emphasis toward the new orientation adopted by faculty and the university in February 1971, and introduced as a new three-year curriculum last September.

The new Dean stressed that the present momentum will be maintained for the traditional programs which have been the source of the faculty's reputation for keeping pace with expanding agricultural technology in teaching, research and extension. Of the traditional program, he feels the Food Science group offers the greatest opportunities for expansion and development.

Dr. Blackwood believes that since the new curriculum is not on traditional lines, faculty and students will undoubtedly have to devote more time to individual counselling and course selection. He added that maintaining the faculty's reputation for research strengthens the quality of teaching and provides modern laboratory equipment and techniques.

Concerning the appropriateness of the faculty extending its offerings in the areas of environmental

studies, the Dean maintains that the Faculty of Agriculture has a stronger continuing involvement in environmental problems than any other in the university.

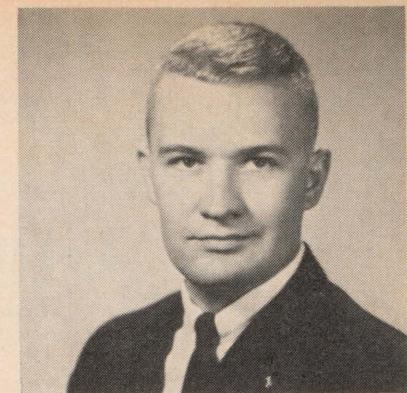
At a time when agencies funding research are directing their support to joint and interdisciplinary projects rather than to individuals, and for applied as opposed to basic research, Dr. Blackwood feels the faculty is adapted to this new thrust because it has traditionally worked in the applied fields.

Born and raised in Calgary, Dr. Blackwood graduated from the University of Alberta in Agriculture in 1942. He proceeded to obtain his M.Sc. in 1944 and worked for the National Research Council until the end of the war. Dr. Blackwood received his Ph.D. from the University of Wisconsin in 1949 and worked for the National Research Council at Saskatoon until 1957.

He came to Macdonald in 1957 to chair the agricultural bacteriology — now known as microbiology — department. Dr. Blackwood has served on a long list of committees: faculty representative to Senate, member of the faculty council of the Faculty of Graduate Studies and Research and the McGill Long-Range Planning Committee. Dr. Blackwood is a founding member of the Canadian Society of Microbiologists and a member of the Royal Society of Canada.

As most of our Journal readers are aware, Dr. Mark W. Waldron, former Director of the Centre for Continuing Education (now the Extension Department) is Director of the Office of Continuing Education at the University of Guelph. Last fall, the Associate Director, Galen A. Driver, joined the Ontario Department of Agriculture and Food and is working out of North Bay. At that time, Prof. P. Y. Hamilton, Assoc. Prof. of the Animal Science Department and Director of Diploma Agriculture assumed the responsibilities of Acting Director. The Macdonald community is pleased to welcome two new staff members.

Dr. Gordon R. Bachman is a native of Nebraska where he grew up on a farm. He received his B.Sc. degree

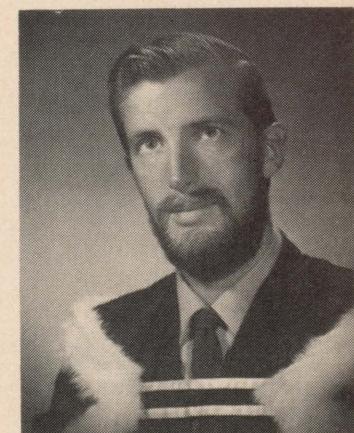


Dr. G. R. Bachman.

in agriculture from the University of Nebraska and his M.Sc. degree in agricultural journalism from the University of Wisconsin. Gordon comes to us most recently from Michigan State University where he received his Ph.D. in the Department of Resource Development in 1971. His major professional interest is in the broad field of area resource development and land economics.

Dr. Bachman has been appointed as Assistant Professor of Agricultural Economics and Extension Specialist. His immediate responsibility will be teaching courses in the Extension Department and the new Renewable Resources major.

Mr. Martin van Lierop was born in The Netherlands. He was raised on a farm near Cowansville, Quebec.



Mr. M. van Lierop

Martin graduated from Macdonald with a B.Sc. in 1971. Though a recent graduate, his career in extension work already includes years of experience in Quebec (he is fluently bilingual — as a matter of fact, he speaks about five languages) and in Africa. His responsibilities in the Extension Department will be mainly in the area of community field programs and services.

Choice or Chance?

Health is a precious possession over which we have only partial control. The home in which we are born, the parents whose genes we inherit and the country to which we owe allegiance all affect our health for better or for worse.

The baby born in a refugee camp, the child reared in the slums of a large city or the person conceived by parents out of wedlock has less than a normal chance of embracing abundant health. Does this mean that we must surrender what little control we do have because we cannot exercise complete control? Certainly not!

Genetic factors can never be changed and environmental factors seldom can, but there is still plenty we can do. Even though a person has a tendency towards a certain disease, he may never develop it, if he controls the environmental factors which also predispose to that disease. Careful choice of food can play an important role in preventing disease.

Phenylketonuria is an incurable, inherited disease which can be detected very early by a simple test of the urine. The patient can then be treated for this enzyme deficiency disease by controlling his diet. The problem is that he lacks one of the enzymes required for the normal metabolism of an amino acid called phenylalanine. By limiting the intake of this essential amino acid to the amount actually required for growth, and by not burdening the body with extra quantities which have to be metabolized for energy, the doctor can prevent development of very serious brain damage. The disease

cannot be cured at the present time, but the child can learn to live with his deficiency and to lead a normal life. Fortunately this disease is very rare. Choice of food in such a situation is of vital importance.

There is another condition, which for the purpose of this article we will call OVININGOFO, which is much more common than phenylketonuria. Its victims are more accident prone, have a higher incidence of cardiovascular disease and a shorter life span.

OVININGOFO is due to lack of a substance normally absent in the newborn baby, and present in increasing amounts as the child grows into adolescence and youth. It reaches its peak at about 21 years of age, stays at approximately the same level for adult life but in some individuals gradually decreases again after the age of 50. OVININGOFO develops occasionally in children but fortunately not very often. Its highest incidence is in women during the reproductive years, and in men after the age of 30. OVININGOFO is a disease which is difficult to diagnose, as there is no known test for the

missing substance. For this reason the condition is often far advanced before it is detected. There is great need for research into the early detection of the missing factor and also for methods of supplying this substance to the unfortunate individuals who reach adulthood without sufficient supplies to meet their daily requirements. Although OVININGOFO has been detected in certain families to a greater extent than others, there is no evidence to date that this disease is genetically controlled. It may be contagious, as there is a suggestion that it reaches epidemic proportions at certain times of year, when large family gatherings are held. However, there seems to be little immunity built up within a person, for although the disease subsides in individuals, it often reoccurs in the same individuals at a later time.

OVININGOFO is the condition of overindulgence in good food. It can be dealt with only by developing will power and self discipline at an early age. Only then can we resist the temptation of good food. With every year that passes, our health becomes more precious. Why not start today to establish good eating habits so that you and your family can avoid OVININGOFO and enjoy instead good health as defined by WHO — not merely the absence of disease but a state of complete physical, mental and social well being.

Florence A. Farmer, Ph. D.,
Associate Professor,
School of Food Science.

The Family

Farm

Published in the interests
of the farmers of the province
by the Quebec Department of
Agriculture and Colonization

Minister of Agriculture Reacts Favourably to Passage of Bill C-176

Passage by the federal government of Bill C-176 establishing a national marketing council is bound to help bring order to interprovincial trade and hence cause the country's agricultural economy to progress," said the Quebec minister of agriculture, Mr. Normand Toupin, in welcoming the passing of the new federal farm products marketing act. Mr. Toupin added, however, that only time and experience will allow us to judge the real effectiveness of this legislation.

He said that the provinces have been requesting a national marketing policy for a long time and that the first step to be taken was in fact to enact legislation in that field, but that the first federal proposals did not meet the wishes of the provinces — particularly Quebec. As a matter of fact, he said, Quebec wanted all farm products to be covered by the act excepting, of course, wheat and milk. In addition, Quebec asked that the creation of national marketing agencies should not lead to the disappearance of provincial marketing boards.

Following the so-called egg and chicken war, Quebec succeeded in convincing and also obtaining the unanimous approval of all the provinces with regard to the need for a national marketing policy. Nevertheless the question of interprovincial trade had to be temporarily settled through interprovincial agreements prior to the option of Bill C-176 because no

federal act then allowed for interprovincial negotiations in the legal sphere.

At the last meeting of Canada's agricultural ministers in Ottawa, the provinces proposed certain changes in Bill C-176 which were agreed to by the federal minister of agriculture, Mr. H. A. Olson.

Grants Made to Two Milk Pasteurization Plants

The Quebec minister of agriculture, Mr. Normand Toupin, announces that his department has just made the first two grants under a program to subsidize amalgamations of milk pasteurization plants which was approved on December 21.

Under this program, the Laiterie Leclerc Inc., of Sherbrooke and the Laiterie Victo, of Victoriaville will receive \$10,638 and \$8,364 respectively. The Laiterie Leclerc will receive the grant for taking over the Laiterie Couture Inc. at East Angus, the amount being based on 53,186.6 pounds of fat received at the merged plant. Twenty cents are allowed for each pound of fat.

The Laiterie Victo, which is taking over Laiterie de Princeville Enr., will receive its grant on the basis of the 41,821.13 pounds of fat received at the merged plant. This is also reckoned at 20 cents per pound of fat.

These subsidies are part of a policy to promote reorganization of the milk processing industry in order to make it more efficient and more profitable, especially in the case of pasteurizing plants.

ANIMAL HEALTH INSURANCE

The Quebec department of agriculture announces the publication of a booklet on its contributory animal health insurance program which came into force in May 1971.

The program is designed to protect the health of livestock by enabling all farmers throughout the province to obtain the services of a veterinarian at not more than half their real cost.

An issue of 50,000 French and 15,000 English copies of the booklet has been prepared by the department's information service. This publication will be available at the 12 regional agricultural offices and from local offices and from veterinarians and all agricultural and related organizations in the province. Interested persons remote from such sources may also apply to the Information Service, Department of Agriculture, Government Buildings, Quebec City.

Agreement with Egg Producers' Federation Conducive To Stable Prices

The recent agreement between the Quebec egg producers' Federation (FEDCO), the wholesale grocers' Association and the Quebec egg distributors' Association will permit the stabilization of prices advocated by the Quebec department of Agriculture under its farm products marketing policy, especially in the field of egg sales.

The above statement was made by the Quebec minister of

Agriculture, Mr. Normand Toupin, in commenting on the results of the three-party agreement which will ensure the sale of FEDCO members' entire egg production during the year.

Under the agreement, which was made at the end of December, the Quebec egg distributors' Association and the Quebec wholesale grocers' Association undertook to buy 55% of their egg requirements from FEDCO. This amounts to FEDCO's whole production, that is 60 to 65 million dozen eggs a year.

The agreement is the result of five months of negotiations directed by Mr. Marcel Trudeau between the three organizations and was made possible thanks to the intervention of Mr. Toupin who acted as mediator in September at a meeting of the three groups. Following that meeting, a draft agreement was drawn up which was to serve as a tool until the final accord.

MINK MARKET RECOVERS

As the market for mink pelts opened in December 1971, the expected increase in prices materialized with a rise of 25 percent for the range of different grades offered as compared with December 1970 prices.

The principal markets of Montreal, Winnipeg, Vancouver, New York, Minneapolis, Seattle, London and the Scandinavian countries showed corresponding increases.

The chief factors which have contributed to the mink market's recovery have been an approximately 20 percent drop in world production, very low manufacturers' stocks and the change in relative values of American and European currencies. As a result of the upward valuation of the German mark in mid-December, Germany's buying power has increased. In this connection it should be pointed out that, last year, West Germany used one third of the world's production which is forecast at 18 million skins this year. The other main mink-buying countries are Italy, Switzerland, Great Britain and France. Thus the upward valuation of several European currencies is helping to consolidate the competitive position of mink exports from Canada to Europe.

United States fur dealers have not yet started to buy mink pelts but their potential need of over one third of world production indicates very favourable prospects for the sale of the remaining production within the coming months.

Good Yield Of Sugar Beets In 1971

In 1971, Quebec's 670 sugar beet growers delivered about 168,600 tons of beets to the Quebec refinery at Mont St-Hilaire, in Rouville county, slightly less than last year's total deliveries of 177,300 tons. This announcement has just been made by Mr. Normand Toupin, Quebec minister of Agriculture, who is president of this crown corporation.

Average yield per acre in 1971 was 20.77 tons (compared with 19.66

in 1970 and 17.04 in 1969) but the sugar content was very low at 12.79 percent (as against 13.74 percent in 1970 and 14.26 percent in 1969). Wet weather at the end of August and in September and larger application of nitrogenous fertilizers are considered to be the cause of this low sugar percentage. If properly topped, however, the beets will be fairly easy to keep.

Food Industry Technician Appointed

The Quebec minister of agriculture, Mr. Normand Toupin, announces the appointment of Mr. Charles-Henri Bussières as head of technical assistance to the food industry in the department's marketing branch.

Mr. Bussières was born at Verchères in 1939. He obtained his bachelor's degree in agriculture and a master's degree in food science at Laval University. From 1965 until his appointment he was engaged in research and lecturing at the St. Hyacinthe Institute of agricultural technology.

The food industry technical assistance section of the agricultural department's marketing branch is part of a comprehensive program to develop the farming and food sector and provide technical aid to the agricultural products processing industry.

IMPORTANCE OF GOOD QUALITY SEED POTATOES

Mr. Luc-R. Bisaillon, marketing expert of the Eastern Quebec Seed Potato Producers Association, advises Quebec growers to buy at once the seed potatoes they expect to plant this spring and to

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1939. Mr. Bisailon, therefore, urges
growers to buy from the Association's
producers seed potatoes of
proven quality while there are
some left. The sustained efforts in
this field by the department of
agriculture are a guarantee of a
quality product suited to local
climatic conditions.

Quebec Cider Makers Just Use Quebec Apples

he Quebec minister of agriculture,
Mr. Normand Toupin, recently
gave his support to a resolution
by the Quebec apple growers
operative concerning the origin
of apples used for making cider in
Quebec.

In a statement in this connection,
Mr. Toupin referred to section 26
of the Quebec Liquor Corporation
Act (Chapter 20 of the 1971 Acts)
and said that every cider maker
must undertake to use apples



Picking apples on the farm of Gérard Bélanger at Cap Saint-Ignace. Shown in the photo are Mrs. Bélanger, Marjolaine and Jeanne-Mance.



harvested in Quebec to the extent of at least 90%. Any maker of strong or weak cider who uses over 10% of apples or apple juice concentrate coming from elsewhere is liable to lose his

permit. The Act respecting the production and sale of cider (Bill 7) assented to on December 11, 1970 by the National Assembly allows the holder of a cider maker's permit to sell his product to the

Quebec Liquor Board or to a place outside Quebec or to any person entitled by permit to sell cider.

Section 5 of this Act specifies the persons who may obtain a strong or weak cider maker's permit, namely apple growers or persons acting on behalf of a corporation, an association of apple-growers or a partnership composed of a majority of apple growers. In all cases the maker must undertake to use for the preparation of the cider that he produces, apples at least 90% of which have been harvested in the province of Quebec.

The above-mentioned resolution by the apple growers cooperative points out that initial sales of cider made from Quebec apples have been encouraging and that the primary aim of the clause insisting on use of Quebec apples is to stimulate the sale of cull apples for the benefit of Quebec growers.

The Farm of Edward Johann

Visitors cannot fail to be impressed by their first glimpse of the wide lawns surrounding Edward Johann's farmstead at Dixville, Stanstead, with their suggestion of occupants happy to live in an environment which they are always bent on improving. The main lawn is bound on either side by a row of huge maples. In the centre stands the house and then there is the road leading from the highway to the farm. It is the entrance to a big estate of 340 acres, fairly typical of the Eastern Townships. The farm's contorted terrain sometimes makes tillage difficult but the loam soil is productive. Half of the acre-

ge is under the plough, there are 5 acres of woodland including a 1,000-spile maple bush, which adds to the farm's income. The eight acres or so of land cleared each year are added to the arable area and there are 85 acres of unimproved pasture.

Thanks to good surface drainage, the applications of lime and fertilizer produce their full effect. These treatments are supplemented with manure spread on the oat stubble and on the hayfields. Herbicides have been used successfully.

When the farm was visited there were 40 acres of Garry oats; the thickness and evenness of this stand foretold an excellent yield. The hayfields, predominantly timothy and clover, gave good yields but dry weather held back the aftermath especially on the higher ground. The 40 acres of pasture provide abundant grazing. The crops are farmed according to a four-year rotation.

The barn is very roomy and has in addition built onto it. Two wooden silos stand close to the main part. Altogether there is space for 91 head of mature cattle and there are also 17 pens for the young stock and the bull. The ventilation and lighting are adequate.

Lime scattered on the floors eliminates odours. A milk pipeline was installed in 1967. There is a bulk tank which holds 3,685 pounds of milk in the centre of the milkhouse. The state of cleanliness is faultless everywhere.

Progress made by Edward Johann since he last competed is mainly in the dairy herd and milk production. The Jersey herd consists of two bulls, 60 cows (10 more than in 1966) and 67 head of young stock (seven more than five years ago). In the interval, the production indices have risen from 74-73 to 102-104. Use of artificial insemination — on more than 40 percent of the herd now — has doubtless had something to do with this improvement. One of the heifers gave 15,000 pounds of milk in her first lactation. Below are the production records of some of the cows.

During the stabling period, the cows are fed a ration of dry hay, silage and 16 percent protein meal. The calves get dry hay and concentrates with a mineral supplement plus a ration of vitaminized milk substitute.

The competitor puts the value of his farm machinery at \$24,000 — a considerable investment which

he protects as much as possible by housing the implements in good sheds and giving them careful maintenance, for which purpose he has a well-equipped workshop.

The house is roomy and well-kept and one can well imagine it to be as venerable and solid as the enormous maples shading it. White under the green foliage, it ensures the occupants ample comfort. Mr. and Mrs. Johann with their daughter Nancy occupy the ground floor and George, their son of 23 who works the farm with his father, lives in the upper part with his young family.

The information supplied to the judges by Mrs. Johann during their visit to the farm made it clear that her activities are not limited to the housekeeping. The accounts she keeps and her obvious interest in the farm show that she takes a wholehearted interest in the entire operation.

Altogether, the Johann farm is a fine agricultural enterprise whose income should increase with the area under the plough.

(From the 1971 Agricultural Merit Competition reports.)

NAME	REGISTRATION NUMBER	AGE AT CALVING	PRODUCTION (305 days)		B.C.A. INDICES
			MILK	FAT	
BEACON'S Vausaukeee Beacon's Utopia	0379725	4 years 254 days	10246	489	139 — 123
		5 303	9753	481	129 — 118
Envoy's Jean	0401058	4 12	9423	566	132 — 147
Envoy's Cup 8 X	0407825	3 248	11021	539	158 — 143
Envoy's Fannie 3Y	0411124	3 24	8592	412	130 — 116



Fordyce Anniversary

On November 27, 1971 Fordyce W.I. celebrated its 25th anniversary. About 60 members and guests enjoyed a buffet luncheon in the United Church Hall in Cowansville. After the luncheon the guests were welcomed by the President Mrs. Annie Dryden. The Collect was repeated in unison. Corsages were pinned on Miss Guila Jones, as the oldest member, and on Mrs. R. Dustin for the splendid work she had done with the Sunshine Box. A monologue entitled "Mountain Phoebe" was very ably given by Mrs. Irene Williams. Greetings from the county were brought by the County President Mrs. Bidner.

A resume of the work done by the Fordyce branch in the past 25 years was given by the Mistress of Ceremonies Mrs. Merlin Lewis. A memorial for the late Mrs. Amy Hooper was given by the President Mrs. A. Dryden. A desk set engraved in her memory was presented to the Missisquoi County Museum. A briefcase was presented to Mrs. Ruby Moore for the work she had done for the branch. Twelve members received 25-year pins. These were pinned on by Mrs. Ruby Moore. A few remarks were given by Mrs. Ella Brown and Mrs. Howard Drennan. The singing of "God Save the Queen" brought an enjoyable afternoon to a close.

In Gaspe County The Fair's the Thing

For many years the Women's Institute branches of Gaspe County have held their own annual fair. Every year a different branch acts as hostess for all county affairs such as the annual convention, semi-annual convention and the fair. The hostess branch chooses the site for the fair wherever most convenient, usually a parish hall. In 1971 the Gaspe branch was hostess and the fair was held at Fort Haldimand Camp, a beautiful site on the shore of Gaspe Bay. A naval officers headquarters during the last war, it was purchased by the Anglican Deanery of Gaspe

and made over for a summer camp for boys and girls of the Deanery — children come from as far as the Magdalen Islands.

At each October meeting plans for the fair begin and the members of each branch bring in suggestions for the various exhibits i.e., sewing, knitting, crocheting, cooking, flowers, literature and a miscellaneous section. These ideas are handed to the president of the hostess branch who, with the secretary and conveners of agriculture and home economics, make up the program, have it printed and send copies out to all branches. This is usually accomplished in time for the December meetings.

The fair is generally held on the second or third Saturday in September. The county agronomist and a technician from the Department of Agriculture are the judges.

On the Friday evening exhibits are collected and tagged and taken to the hall where the members of the hostess branch place them on tables in the various sections. This sometimes takes some manoeuvring, especially if there happens to be 40 or 50 pies to be placed. On Saturday morning at 9 a.m. the judges arrive along with the County President, Secretary, and Conveners of Agriculture and Home Economics. Judging normally takes till noon to complete and the public is admitted at 3 p.m. Supper, which is served at 5 p.m., is usually ham or turkey with salad and pie. Each branch provides a turkey or ham; the pies, rolls, pickles, etc., are used from the exhibits, and the entertaining branch provides the salads. The charge is \$1.25 for adults and 75 cents for children. In 1971, 200 people were served. This is one way of helping county funds. There were 75 exhibitors with a total of 823 entries from the seven branches. A trophy for the branch taking the most prizes is competed for annually. If the same branch wins it for three consecutive years they retain it. York has won the County cup for the second consecutive year. A smaller cup is given annually for the most prizes in vegetables, flowers, handicrafts,



and cooking; also one for the member who has the most entries in handicrafts and the most prizes.

The Women's Institutes hold a Children's Fair in conjunction with their own but on the following Saturday. There are cups to compete for and the judging is done by local judges. The age groups are 6 and under, 7 — 9, 9 — 12, 13 and over. The children enjoy games and finish up with cookies, soft drinks and ice cream.

Beebe Celebrates 50th Anniversary

The evening of November 16, 1971 will long be remembered by friends and members of the Beebe Women's Institute, for on that evening they celebrated their 50th Anniversary in the Wesley United Church Hall. The room was beautifully decorated for the occasion.

The Branch President, Mrs. Clarence Nutbrown, gave an address of welcome. All were asked to join in the singing of the Ode and repeating the Collect. The register, signed by 55 members and friends, was the one used at the time of the Beebe Jubilee and was donated by Mrs. W. Reynolds, daughter of Mrs. J. Turner, who was one of the original members. A scrapbook containing pictures of charter members, life members and W. I. activities through the years was on display. This book was compiled by Mrs. Ezra Woodard and Miss V. Moranville.

A history of the founding of Beebe and the foundation of the Beebe W.I. branch on November 21, 1921 with a membership of 18 was given by Miss Moranville. The first project after organization was to furnish a room in the Wales Home, Membership fees were 25 cents.

Mayor Hugo LaPenna extended congratulations to the W.I. His sentiments were also expressed by Mrs. Grant LeBaron of North Hatley, Mrs. H. Taylor of Sherbrooke, Mrs. W. Cass of Ayer's Cliff, Mrs. L. Naeve of Hatley Center, Mrs. R. Ashman of Stanstead and Mrs. N. Pierce, County President. Mrs. Pierce rendered a solo "Through the Years" and asked everyone to join in singing "Happy Birthday." Mrs. Betty Cass sang two solos, "Slumber on My Little Gipsy Sweetheart" and "Sleep Kentucky Babe". She also read a very fine tribute of her own composing and presented a comedy number when she sang "Has Anyone Seen My Gal?" to which she danced the Charleston.

Life Memberships are held by Charter Members Mrs. House and Mrs. Beane, and by Mrs. E. E. Shepard, Mrs. Stubbs, Mrs. H. Cass, Mrs. E. Woodard and Miss Viola Moranville. Mrs. Stubbs has belonged to the W.I. for nearly 58 years.

eebe W.I. celebrates its 50th anniversary. From left to right: Charter Member Mrs. H. Beane, Mrs. F. Vawdry of Ennoxville, daughter and granddaughter of charter members and Miss Viola Moranville, Secretary.

several notes of congratulations were read, while others regretted not being able to attend. The local dignitaries who attended were Mayor and Mrs. H. LaPenna, Rev. and Mrs. R. Rogers, Rev. and Mrs. J. Brooks and Father J. Delasco.

buffet lunch was served. Mrs. Beane and Mrs. Stubbs poured at the buffet table. A social period followed to end a most enjoyable evening.

Tribute to Beebe W.I. on the occasion of their 50th Anniversary

looking back on fifty years
No path seems rather dim,
but when we read of kindly deeds
More often light up with a gleam.

met to learn, to do and play,
ive help in time of need,
ur hand in friendship with a smile,
r help to show the way.

never walked in a parade
r staged a demonstration —
ut rather worked in quietness
or the people of all nations.

Elizabeth Cass (Nov. 1971).

scription Please
See Publicity outline)

nswer to problem in January
W.I. news re ways to encourage
ore group participation in
usiness discussions. Try saying,
Mrs. Smith, what do you think?"
people usually like to be called by
ame.

Don't"

copywriter applying for a job
a newspaper was asked, "Are
ou good at condensing material?"
Sure," he replied. "O. K. Do
rewrite on this and really cut
short," said the editor with tongue
cheek as he handed him a copy
the Ten Commandments.
he applicant hurriedly read the
aterial and in a few minutes
urned with the rewrite and was
mmediately hired. On the paper
as just one word — "Don't!"

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(The following is one of the prize winners in a recent essay contest.)

Why I Became a W. I. Member

I have only been a member of the Women's Institute for four years and, therefore, feel I still have a great deal to learn.

During the preceding years I had often been asked to join but, because I am the mother of two retarded children, I had the foolish impression that neither the children or our home could survive if I left for a few hours.

Time passed and we had to place one of our children in a home. It was then that one of our W.I. members, who now has a Life Membership pin, encouraged me to join. She tried to make me understand that I would not be harming or forgetting my son but helping myself. I realize now that if a woman remains in her own little corner year after year her life can get very boring and monotonous for lack of variety and giving of one's self to others.

At the first W.I. meetings I attended I was hesitant and uncertain and felt on the outside of things, but after a few months I really got into the spirit of the Institute and began to look forward to our monthly meetings. Often a person will say, "Oh! I just don't feel like going tonight," but once you have dressed up and met all the ladies at the meeting you come home feeling so much better.

How often do many of us go to a meeting thinking that our own personal burdens are so heavy and then, when we hear of others that have so much more to carry, we come away with a glimmer of hope in our hearts that we are not so badly off after all.

I love the spirit of the Institute. We keep ourselves busy making ditty bags for the deprived children that have nothing, and as one's fingers work at those bags one can almost picture their dear, little eyes light up at such humble articles that mean so little to our lucky Canadian children that have so much.

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5th in a series

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HOGS POULTRY BEEF CATTLE DAIRY CATTLE

the pleasure of attending a convention at Macdonald College found out what wonderful people are in the Women's Institute. Just good "down to earth" men that are trying to make homes by raising the standards of homemaking — teaching their daughters the basic truths with materials made in Canada.

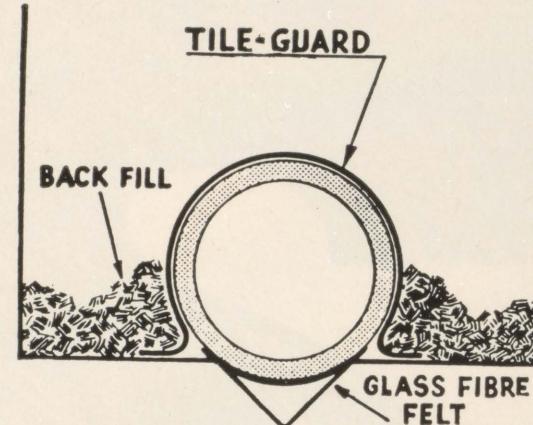
At our meetings we should not be afraid to speak up and express thoughts and ideas, to bring lippings and poems to read to discuss ways to help our mothers so we can best understand and accept their ideas, although at times they differ from ours.

I think every member should own a copy of the book called, "Q.W.I. 1961 — The First Fifty Years." There is a poem that was read at a 1957 convention I wish every member would read and understand. I'm proud to wear my W.I. pin and I'm also helpful to the W.I. for changing my life.

Morris Kennedy,
Glastown W.I.

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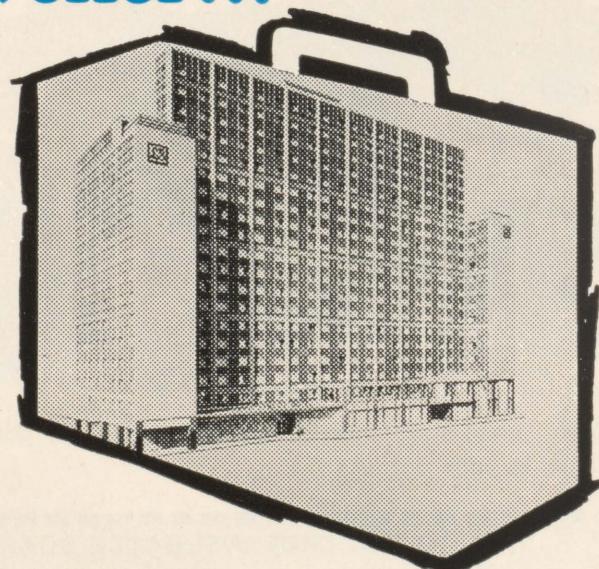
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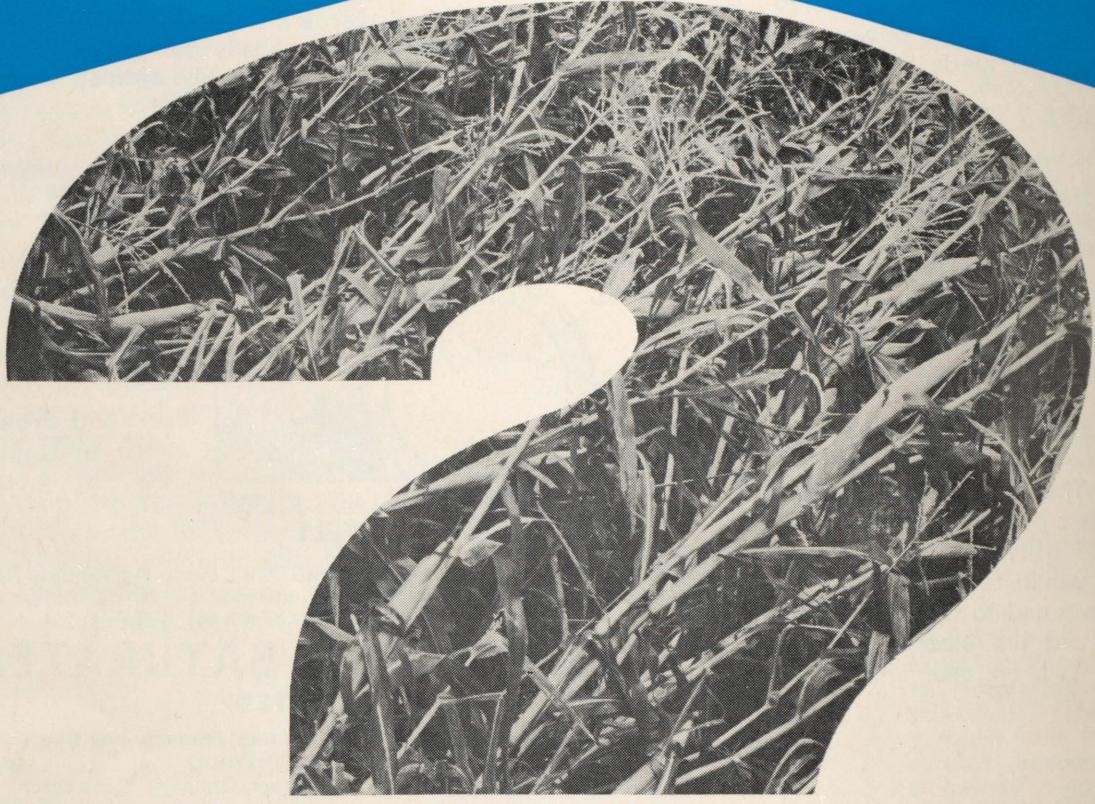
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